

Missouri Department of Natural Resources
Total Maximum Daily Load Information Sheet

Blue River

Water Body Segment at a Glance:

County: Jackson

Nearby Cities: Kansas City

Length of impaired segment:

Water Body ID 417: 4 miles

418: 9 miles

419: 9 miles

421: 11 miles

Pollutant: Bacteria

Source: Urban Nonpoint Source



Scheduled for TMDL development: 2011

Description of the Problem

Beneficial uses of Blue River

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health (Fish Consumption)
- Secondary Contact Recreation
- Whole Body Contact Recreation (WBID 419-Category A; others-Category B)
- Industrial Uses (WBID 417 and 418 only)

Use that is impaired

- Whole Body Contact Recreation

Standards that apply

- Missouri's Water Quality Standards at 10 CSR 20-7.031(4)(C) state that the *E. coli* bacteria count shall not exceed 126 colonies per 100 milliliters of water (126 col/100 mL) for Category A and 206 col/100 mL for Category B waters. This count is the geometric mean during the recreational season (April 1- October 31) in waters designated for whole body contact recreation.

Background information and water quality data

The Blue River is an urban water body and flows northeast through Kansas City to the Missouri River (see map on last page). For whole body contact recreation waters, Category A means there are swimming areas which are open to and fully accessible by the public. Category B waters have places deep enough for total immersion (i.e., swimming), but they may be on private lands or

inaccessible to the public. The impairment for the Blue River is based on data collected by the U.S. Geological Survey from 1999 to 2008.

Excessive amounts of fecal bacteria in surface water used for recreation are an indication of an increased risk of pathogen-induced illness to humans. Infections due to pathogen-contaminated waters include gastrointestinal, respiratory, eye, ear, nose, throat and skin diseases. Like fecal coliform, *Escherichia coli*, or *E. coli*, are bacteria found in the intestines of warm blooded animals and used as indicators of the risk of waterborne disease from pathogenic (disease causing) bacteria or viruses. Most *E. coli* strains are harmless, but some can cause serious illness in humans and are occasionally responsible for product recalls. The harmless strains are part of the normal flora of the intestines, and can benefit their hosts by preventing the establishment of pathogenic bacteria within the intestine^{1,2}. Missouri's bacteria criteria are based on specific levels of risk of acute gastrointestinal illness. The levels of risk correlating to these criteria are no more than eight illnesses per 1,000 swimmers in fresh water.

A water body is judged not to be impaired if the geometric means for all of the last three years for which data is available are less than the appropriate water quality criteria. There should to be at least five samples to calculate the geometric mean. For Blue River, the mean of recreation-season data for each WBID exceeded the water quality criteria for *E. coli* in at least one year of the last three years of data. It should be noted that in WBIDs 417 and 421 the geometric means in the three most recent years were calculated using fewer than five samples, so further monitoring has been scheduled. The criterion for Category A waters is 126 col/100 mL and the criterion for Category B waters is 206 col/100 mL. The four graphs below show the geometric means by year for each segment (WBID).

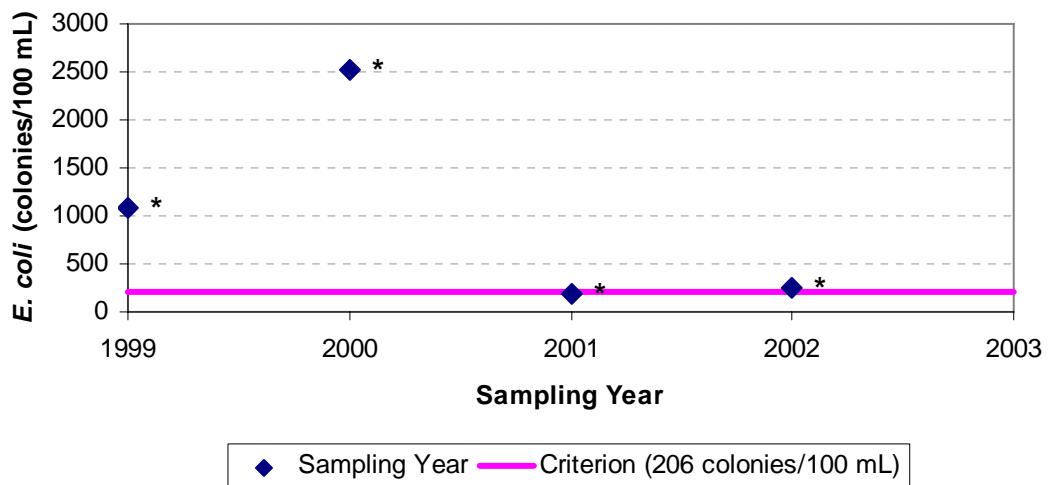
No specific sources of bacteria have been identified, but it is believed the impairment comes from storm water runoff from the Kansas City metropolitan area, which drains to the Blue River. Storm water is known to wash many types of pollutants, including animal feces, from the watershed into its receiving water body.

People can protect themselves from waterborne illness by avoiding contact with contaminated water. However, when swimming anywhere, it is wise to take common sense precautions. These include washing hands before eating, showering after swimming and avoiding exposure to questionable water if you have open cuts or wounds.

¹ Hudault S, Guignot J, Servin AL (July 2001). "[Escherichia coli](#) strains colonising the gastrointestinal tract protect germfree mice against *Salmonella typhimurium* infection". *Gut* **49** (1): 47–55

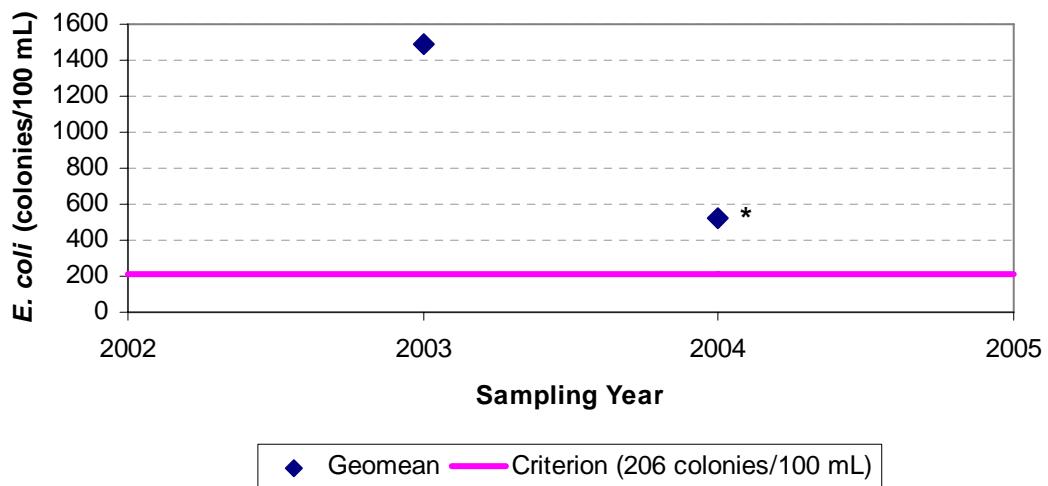
² Reid G, Howard J, Gan BS (September 2001). "Can bacterial interference prevent infection?". *Trends Microbiol.* **9** (9): 424–8.

***E. coli* Data for WBID 417 Blue River
from the 1999 - 2002 Recreational Seasons**



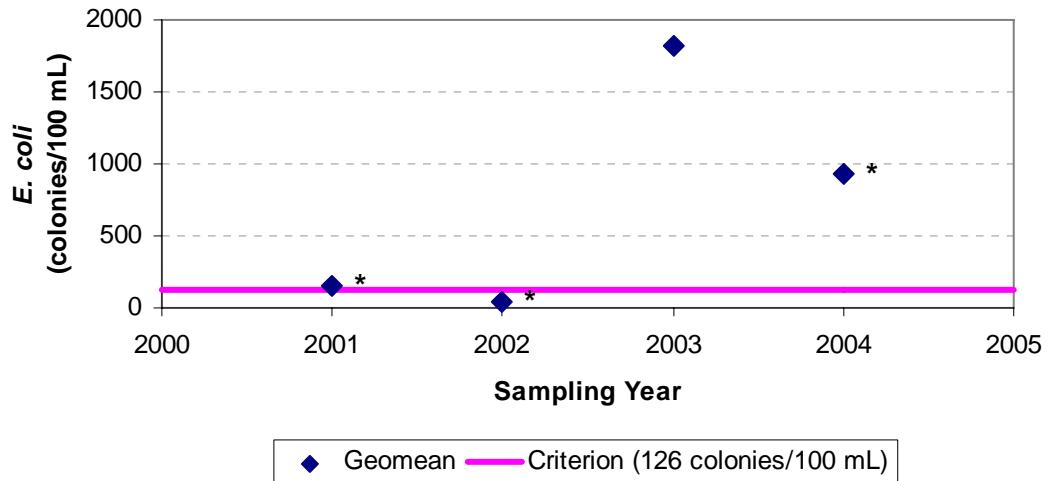
* Geomean calculated using fewer than five (5) samples

***E. coli* Data for WBID 418 Blue River
from the 2003 - 2004 Recreational Season**



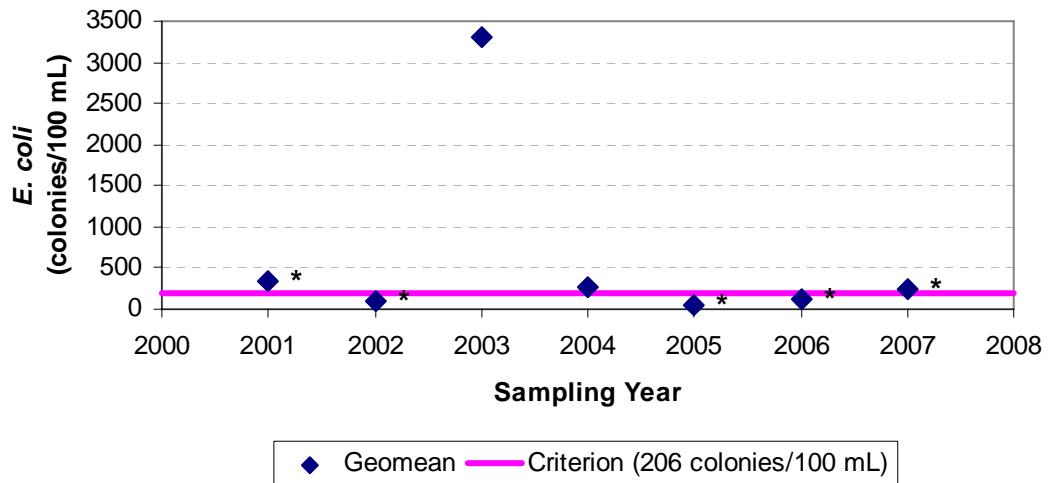
* Geomean calculated using fewer than five (5) samples

***E. coli* Data for WBID 419 Blue River
from the 2001 - 2004 Recreational Season**



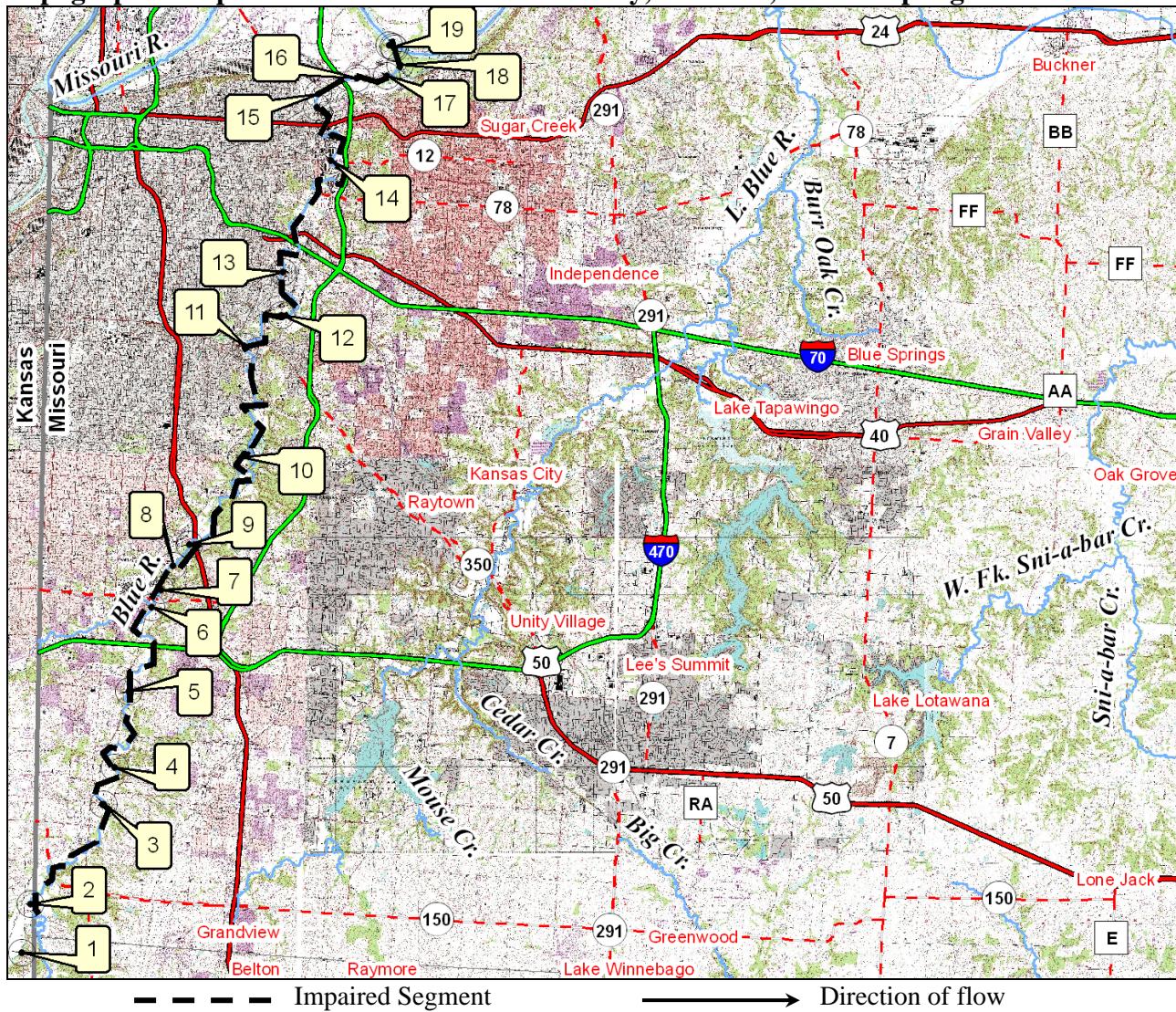
* Geomean calculated using fewer than five (5) samples

***E. coli* Data for WBID 421 Blue River
from the 2001 - 2007 Recreational Seasons**



* Geomean calculated using fewer than five (5) samples

Topographic Map of Blue River in Jackson County, Missouri, with Sampling Site Locations



— Impaired Segment → Direction of flow

Sample Sites			
1	Blue R. 3 miles SE of Stanley	11	Blue R. at Blue Parkway
2	Blue R. WWTP* (Johnson Co., Kans.)	12	Blue R. 0.8 miles below Brush Cr.
3	Blue R. at Blue Ridge Blvd	13	Blue R. at Stadium Dr.
4	Blue R. 5.4 miles upstream of Indian Cr.	14	Blue R. at 12th Street
5	Blue R. 3.0 miles upstream of Indian Cr.	15	Blue R. at RR bridge near Scarritt Ave.
6	Blue R. just upstream of Indian Cr.	16	Blue R. under power lines
7	Blue R. at Bannister Road	17	Blue R. 500 ft. below drainage ditch
8	Blue R. 1 mile below Indian Cr.	18	Blue R. 900 ft. above mouth
9	Blue R. at Hickman Mills Dr.	19	Blue R. near mouth
10	Blue R. below Gregory Blvd.		

For more information call or write:

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